

### **ABSTRACT OF THE DISCLOSURE**

A camera calibration device capable of simply calibrating a stereo system consisting of a base camera and a detection camera. First, distortion parameters of the two cameras necessary for distance measurement are presumed by the use of  
5 images obtained by shooting a patterned object plane with the base camera and the reference camera at three or more view points free from any spatial positional restriction, and projective transformation matrixes for projecting the images respectively onto predetermined virtual planes are calculated. Then internal parameters of the base camera are calculated on the basis of the projective  
10 transformation matrixes relative to the images obtained from the base camera. Subsequently the position of the shot plane is presumed on the basis of the internal parameter of the base camera and the images obtained therefrom, whereby projection matrixes for the detection camera are calculated on the basis of the plane position parameters and the images obtained from the detection camera. According  
15 to this device, simplified calibration can be achieved stably without the necessity of any exclusive appliance.

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